BUILDING A REPUTATION
BY BUILDING FOR
TOMORROW.
For more than 35 years, Firestone Building Products has provided commercial roofing and building envelope solutions with a consistent commitment to quality, durability and innovation – before ‘green building’ became an industry catchphrase, Firestone systems were saving energy around the world.

As the business and environmental case for sustainability gained momentum, the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) certification program became synonymous with green building. More than a million-and-a-half square feet of real estate are LEED-certified every day, and the rating system is introducing a fourth sweeping revision to the market.

LEED Version 4 makes significant changes to an already demanding process, including more rigorous analysis of building products, mandatory measurement of energy performance, and more emphasis on water and land use.

With LEED setting higher standards, Firestone continues to raise the bar. A full portfolio of green products – energy-saving polyiso insulations, reflective UltraPly™ TPO and EcoWhite™ EPDM membranes, vegetative roofing solutions, airtight building envelope systems and more – qualify for LEED credits and contribute to healthy, high-performance construction.

As LEED evolves, Firestone’s commitment to industry-leading systems, support and service remains constant. Consult this guide for an overview of LEED V4 and how Firestone products can minimize your environmental impact and maximize building value.

WHAT’S NEW IN LEED V4?

When the U.S. Green Building Council announced the launch of LEED V4 in 2016, many building and design professionals called it the most comprehensive overhaul in the program’s 18-year history. It expands the certification to new sectors – like data centers and warehouses – while streamlining many credits and cutting documentation paperwork.

But while some administrative aspects of V4 are less challenging, many of the program requirements are more stringent. The new LEED is more performance-based, demands more transparency on building materials, and adopts more stringent energy efficiency standards – an area where Firestone’s building envelope systems (including our ISO insulations) help raise indoor comfort while lowering utility bills.

Another point of emphasis in LEED V4 is Integrative Process, recognizing the value of collaboration by rewarding the engagement of a project team that works together from design through construction. At Firestone, we see our role as a partner, not a supplier, and we will provide resources and involvement on the team to help projects that use our systems earn the Integrative Process credit.

INNOVATIVE PRODUCTS FOR SUSTAINABLE BUILDINGS

Firestone Building Products provides sustainable solutions for the full spectrum of building requirements from a single new roof to a fully integrated, site-wide sustainability solution. The diagram below highlights the many sustainable products and systems that we offer.

Please read on to view more specifics on our sustainable products.
LEED V4 creates a new category, Location & Transportation, that allows for the advantages (like mass transit) that benefit the Sustainable Sites category focused on how the construction team can maximize advantages. Firestone’s SkyScape® Vegetative Roofing Systems help earn credits towards eco-friendly open space and habitat restoration requirements. LEED V4 also focuses on rainwater reuse (versus stormwater management), supported by Firestone’s PondGard® liners.

**SS REQUIREMENT: CONSTRUCTION ACTIVITY POLLUTION PREVENTION**

Requirements: Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent.

**Intent:** To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust.

**SS CREDIT: HEAT ISLAND**

Requirements: For projects that achieve a density of 1.5 floor-area ratio (FAR), and are identified as previously developed. Projects that achieve a density of 1.5 floor-area ratio may include vegetated roof surfaces in this calculation.

**Intent:** To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

**SS CREDIT: OPEN SPACE**

Requirements: To promote walking, biking, and other non-motorized transportation that results in reduced vehicle miles traveled (VMT), increased public health, and environmental benefits.

**Intent:** To promote walking, biking, and other non-motorized transportation that results in reduced vehicle miles traveled (VMT), increased public health, and environmental benefits.
The Bridgestone Americas Technical Center was built to LEED® Gold specification. The roof of the 265,000 sq. ft. facility is composed of two layers of 2" Firestone ISO 95+™ GL mechanically attached insulation, one layer of Firestone ISOGARD™ HD Coverboard, Firestone fully-adhered 90-mil RubberGard™ EcoWhite™ Platinum EPDM backed by a 30-year Firestone Platinum Warranty and topped with a SkyScape™ Vegetative Roofing System, SkyPaver™ Walkways and vegetative roofing. Additionally, the building features many Firestone Metal Wall components such as:

- S4500 Aluminum Panel Rainscreen System
- Flat Lock Stainless Steel Wall Panels
- UC-600 Aluminum Exposed Fastener Panels
- UC-500 Aluminum Soffit Panels
- 5200 Aluminum Column Covers
- Aluminum Sun Screens
- LS-1 Light Shelves

Other highlights include natural daylighting, light sensors, filtered chemical hoods, heat transfer heating/cooling system and ultra-high-efficiency glazed glass. The grounds include rainwater cisterns that collect roof water for on-site irrigation, bioswales that absorb stormwater, recharge the aquifer and minimize runoff, as well as native plant landscaping.
The Water Efficiency (WE) section addresses water holistically, looking at indoor use, outdoor use, specialized uses, and metering. The section is based on an “efficiency first” approach to water conservation. As a result, each prerequisite looks at water efficiency and reductions in potable water use alone. Then, the WE credits additionally recognize the use of nonpotable and alternative sources of water.

LEED V4 includes new prerequisites for reducing outdoor water use by at least 30% from a calculated peak baseline, with an additional point awarded for a 50% reduction. Being a highly sustainable membrane, Firestone’s PondGard™ liners can hold water that can be reused for irrigation or other purposes. Firestone PondGard also resists microbial and algae attack, resulting in naturally healthy ponds. The lining offers outstanding resistance to UV exposure, ozone, frost, snow and extreme temperatures.

**WATER EFFICIENCY**

**Requirements:**
Reduce the project’s landscape water requirement by at least 50% from the calculated baseline for the site’s peak watering month.

**Intent:**
To reduce outdoor water consumption.

**WE CREDIT: OUTDOOR WATER USE REDUCTION**

**Up to 2 Points**

**Requirements:**
Reduce the project’s landscape water requirement by at least 30% from the calculated baseline for the site’s peak watering month.

**Intent:**
To reduce outdoor water consumption.

**WE REQUIREMENT: OUTDOOR WATER USE REDUCTION**

**SITE PRODUCTS**

**PONDGARD LINERS**

**Requirements:**
- Outdoor Water Use Reduction
- Pollution Control
- Outdoor Water Use Reduction

**WATER EFFICIENCY**

The Aiken County Off-Road Radial Tire Plant was constructed with many sustainable features and materials in alignment with Bridgestone’s global commitment to the environment.

The plant is built to LEED® Silver construction specifications. In addition, sustainable and advanced technologies from Firestone Building Products, a subsidiary of Bridgestone Americas, were used throughout the facility. The new plant relies on UltraPly™ TPO roofing, ISO 95+™ GL Insulation, UNA-FOAM™ Insulated Metal Wall Panels, SkyPaver™ Composite Roof Pavers and GeoGard™ Lining for retention ponds and water harvesting areas.

**The Firestone Building Performance Solution Break Down**
- 1,760,000 sq. ft. UltraPly TPO
- 3,560,000 sq. ft. of ISO 95+™ Insulation
- 32,000 sq. ft. of SkyPaver Composite Roof Pavers
- 530,300 sq. ft. of UNA-FOAM Panels
- 180,500 sq. ft. of GeoGard Lining

As a result of keeping this project in the “family,” Bridgestone has a building of which they can be proud. It’s energy efficient, high performing and visually appealing. Not to mention that it was done right the first time and completed on time.

The environmental mission statement of the Bridgestone Corporation is, “To help ensure a healthy environment for current and future generations.” For the people of Aiken County, South Carolina, that’s more than a mission statement. It’s a promise kept.
The Energy and Atmosphere (EA) category approaches energy from a holistic perspective, addressing energy use reduction, energy-efficient design strategies, and renewable energy sources.

LEED® V4 features higher standards for energy efficiency, and a stronger emphasis on performance measurement: whole-building energy is now required, to ensure that projects live up to efficiency projections in day-to-day operations. Firestone has a number of products that contribute to points in these areas, with proven installed performance.

Of particular note, the bar to achieve optimized energy performance under V4 has been raised to ASHRAE 90.1-2010 compliance (instead of the 2007 version); Firestone’s ISO insulation products meet or exceed these tougher energy-saving standards.

ENERGY REQUIREMENT: MINIMUM ENERGY PERFORMANCE

Requirements: Demonstrate an improvement of 5% for new construction, 3% for major renovations, or 2% for core and shell projects in the proposed building performance rating compared with the baseline building performance rating. Calculate the baseline building performance according to ANSI/ASHRAE/IESNA Standard 90.1-2010, Appendix G, with erata (or a USGBC-approved equivalent standard for projects outside the U.S.), using a simulation model.

Intent: To reduce the environmental and economic harms of excessive energy use by achieving a minimum level of energy efficiency for the building and its systems.

EA CREDIT: OPTIMIZE ENERGY PERFORMANCE

Requirements: Establish an energy performance target no later than the schematic design phase. The target must be established as kBtu per square foot-year (kW per square meter-year) of source energy use.

Intent: To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic harms associated with excessive energy use.

EA CREDIT: RENEWABLE ENERGY PRODUCTION

Requirements: Use renewable energy systems to offset building energy costs.

Intent: To reduce the environmental and economic harms associated with fossil fuel energy by increasing self-supply of renewable energy.

ENERGY AND ATMOSPHERE

Firestone Building Products LEED v4 Credit Guide - 9
The Materials and Resources (MR) credit category focuses on minimizing the embodied energy and other impacts associated with the extraction, processing, transport, maintenance, and disposal of building materials. The requirements are designed to support a life-cycle approach that improves performance and promotes resource efficiency. Each requirement identifies a specific action that fits into the larger context of a life-cycle approach to embodied impact reduction.

**MR CREDIT: BUILDING LIFE-CYCLE IMPACT REDUCTION**

**Requirements:**
- During the design phase, buildings have local, regional, and global environmental effects. Some occur during the harvest, extraction, manufacture, and transportation of materials; others involve construction and operations; still others take place at demolition and disposal. A life-cycle assessment (LCA) examines as many of these environmental effects as possible. This credit identifies several strategies for reducing harm done to the environment over a building’s entire life cycle: restoring existing buildings, reusing building components, and reducing a building’s environmental footprint through LCA.

**Intent:**
To encourage adaptive reuse and optimize the environmental performance of products and materials.

**POINTS**
Up to 5

**Requirements:**
- **MR CREDIT: BUILDING LIFE-CYCLE IMPACT REDUCTION**
- **ISO 95+ TM GL INSULATION**
- **RESISTA® POLYISOCYANURATE INSULATION**
- **RUBBERGARD™ EPDM MEMBRANES**
- **ULTRALAY™ TPO ROOFING SYSTEMS**
- **ULTRAPLY™ TPO ADHERED ROOFING SYSTEM**
- **MODIFIED BITUMEN ROOFING SYSTEMS**
- **ENVERGE™ CI EXTERIOR WALL INSULATION**
- **PONDGARD® EPDM LINERS**
- **GEOGARD® EPDM MEMBRANE**

**Firestone Products that Earn MR LEED® Credits**

- **BUILDING PRODUCT DISCLOSURES – Environmental Product Declarations**
- **BUILDING PRODUCT DISCLOSURES – Type III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type II/III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type II/III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type II/III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type II/III EPD**
- **BUILDING PRODUCT DISCLOSURES – Type III EPD**

For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

**Firestone Building Products LEED® 4 Credit Guide** - 11
The Indoor Environmental Quality (EQ) category rewards decisions made by project teams about indoor air quality and thermal, visual, and acoustic comfort. Green buildings with good indoor environmental quality protect the health and comfort of building occupants. High-quality indoor environments also enhance productivity, decrease absenteeism, improve the building’s value, and reduce liability for building designers and owners. This category addresses the myriad design strategies and environmental factors—air quality, lighting quality, acoustic design, control over one’s surroundings—that influence the way people learn, work, and live.

**INDOOR ENVIRONMENTAL QUALITY**

**Requirements:**
This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions into indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air- and water-resistive barrier materials.

**Intent:**
To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

**Requirements:**
- Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces.

**EQ CREDIT: THERMAL COMFORT**

**Requirements:**
Meet the requirements for both thermal comfort design and thermal comfort control.
- Option 1: ASHRAE Standard 55-2010
- Option 2: ISO and CEN Standards

**Intent:**
To promote occupants’ productivity, comfort, and well-being by providing quality thermal comfort.

**Requirements:**
- Meet the requirements for both thermal comfort design and thermal comfort control.
- Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces.

**EQ CREDIT: QUALITY VIEWS**

**Requirements:**
- Achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area. Vision glazing in the contributing area must provide a clear image of the exterior, not obstructed by frits, films, patterned glazing, or added tints that distort color balance.

**Intent:**
To give building occupants a connection to the natural outdoor environment by providing quality views.

**EQ CREDIT: DAYLIGHT**

**Requirements:**
- Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces.

**Intent:**
To connect building occupants with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight into the space.

---


---

**Firestone Products That Earn EQ LEED® Credits**

**Roofing Products**

**Sunwave™ Daylighting System**

**EQ Credit:** Daylight

**Wall Products**

**Enverge™ CI Exterior Wall Insulation**

**EQ Credit:** Thermal Comfort

**Enverge Air & Vapor Barrier**

**EQ Credit:** Thermal Comfort
Sustainable design strategies and measures are constantly evolving and improving. New technologies are continually introduced to the marketplace, and up-to-date scientific research influences building design strategies. The purpose of this LEED® category is to recognize projects for innovative building features and sustainable building practices and strategies.

The Innovation Curve
For 35 years, Firestone has been pushing the envelope to meet the needs of our customers when it comes to outstanding buildings and structures. Our focus on sustainability is one more example of how Firestone is always looking ahead, working to create innovative systems that deliver superior building performance. Firestone's full line of systems and accessories allow the creation of buildings that don't just stand up to the test of LEED® certification, but stand up to the test of time. Be sure to contact your Firestone Building Products professional to learn about our products and how you are building for the future today.

INNOVATION

Requirements:
Option 1: Achieve significant, measurable environmental performance using a strategy not addressed in the LEED® green building rating system.
Option 2: Achieve one pilot credit from USGBC’s LEED® Pilot Credit Library.
Option 3: Achieve exemplary performance in an existing LEED® prerequisite or credit that allows exemplary performance, as specified in the LEED® Reference Guide, V4 edition.

• Exemplary Performance: An exemplary performance point is typically earned for achieving double the credit requirements or the next incremental percentage threshold.

Intent: To encourage projects to achieve exceptional or innovative performance.

REGIONAL PRIORITY

Requirements:
Earn up to four of the six Regional Priority credits. These credits have been identified by the USGBC regional councils and chapters as having additional regional importance for the project's region.

Intent: To provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities.

Firestone Building Products offers many products and systems that qualify for Regional Priority Credits. A database of Regional Priority Credits and geographic applicability is available on the USGBC website, www.usgbc.org/rpc. To look up Regional Priority Credits close to your location, Firestone encourages visiting this website.
University of Colorado, Denver (UCD) was creating a new landmark building for the city campus. The Academic Building was designed to symbolize optimism in education and in the future. Each day the building greets UCD students working their way through the University, as they chase the American Dream with a foothold in higher education.

To give the building a future-forward look, and based on satisfaction with previous projects, the architects had specified Firestone Series 2500NR Aluminum Plate Wall Panel for the building in addition to a Firestone UltraPly™ TPO roof. As the building was priced out, it became apparent that 2500NR was not within the budget. To provide the desired envelope performance and look, a team consisting of Firestone engineers, sales and development pros worked to adapt the Firestone Series 3200 Plate panel. Still, the project risked going over budget due to insulation needs.

Again, the team worked to find a solution and incorporated the Firestone Enverge™ Cavity Wall insulation system. This system reduced the need for additional fasteners and the amount of thermal bridging in the insulation. The Enverge was an easy switch from a competitive insulation system. By allowing Firestone to engineer a system specifically for the Academic Building, the client saved money without sacrificing building efficiency and the design criteria. It was a complete solution from a single source. Key products used include:

- Enverge CI
- 3200NR
- UltraPly TPO

**SITE PRODUCTS CREDIT OPTIONS**

- PondGard™ EPDM Liners
- Omega Panels
- ISOGARD™ HD CoverBoard
- RESISTA Polyiso Insulation
- Tapered ISO 95+ Polyiso

**WALL PRODUCTS CREDIT OPTIONS**

- UnaClad™ Metal Panel Roofing
- Self-Adhered TPO Sheets
- UltraWhite™ Granulated Cap
- AcryliTop™ Coating
- UltraPly™ TPO
- Ballasted RubberGard EPDM
- EcoWhite Platinum Membrane
- Enverge Air & Vapor Barrier
- Omega Panels
- ISOGARD™ HD CoverBoard
- RESISTA Polyiso Insulation
- Tapered ISO 95+ Polyiso

**ROOFING PRODUCTS CREDIT OPTIONS**

- SunWave SMRT Daylight-System
- SunWave Daylighting Membrane
- V-Force™ Vapor Barrier Board
- HailGard™ Composite Board
- ISOGARD™ HD CoverBoard

**MATERIALS & RESOURCES CATEGORY**

- **Energy & Atmosphere Category**
  - **Optimize**
    - Energy use reduction
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Innovation Category**
  - **Reduce**
    - Emissions
    - Energy use
    - Water use
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Design Category**
  - **Credit Options**
    - Energy use reduction
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Sustainable Sites Category**
  - **Credit Options**
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Indoor Environmental Quality Category**
  - **Credit Options**
    - Energy use reduction
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Water Efficiency Category**
  - **Credit Options**
    - Energy use reduction
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

- **Regional Priority Category**
  - **Credit Options**
    - Energy use reduction
    - Water use reduction
    - Indoor Environmental Quality
    - Water Efficiency
    - Regional Priority

Firestone Building Products LEED v4 Credit Guide - 17